



Application No. 10/653,201
Amendment dated August 17, 2005
RESPONSE TO OFFICE ACTION dated June 22, 2005

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF THE CLAIMS

Claims 1-5 (canceled)

6. (previously presented) A method of forming a microporous fluoropolymer sheet, comprising the steps of:

irradiating a sheet of fluoropolymer at a dosage level below the rupture energy of the carbon-to-fluorine (C-F) bonds of the fluoropolymer, but sufficient to rupture carbon-to-carbon (C-C) bonds by moving said sheet of fluoropolymer past a stationary source of electrons, wherein said source of electrons is comprised of a target material exposed to x-rays; and

exposing the sheet of fluoropolymer to an etchant for a period of time sufficient to etch away disrupted atoms and molecules, wherein continuous micropassages are formed through said sheet.

7. (previously presented) A method of forming a microporous fluoropolymer sheet, comprising the steps of:

irradiating a sheet of fluoropolymer at a dosage level below the rupture energy of the carbon-to-fluorine (C-F) bonds of the fluoropolymer, but sufficient to rupture carbon-to-carbon (C-C) bonds by moving said sheet of fluoropolymer past a stationary source of electrons, wherein said source of irradiation is an isotope; and

exposing the sheet of fluoropolymer to an etchant for a period of time sufficient to etch away disrupted atoms and molecules, wherein continuous micropassages are formed through said sheet.

8. **(currently amended)** A method as defined in ~~claim 1~~claims 6 or 7, wherein said dosage level is between 5 kGy and 20 kGy.

9. **(currently amended)** A method as defined in ~~claim 1~~claim 8, wherein said etchant is a liquid.

10. **(previously presented)** A method as defined in claim 9, wherein said etchant is selected from the group consisting of sodium, ethylene glycol dimethyl ether (MONOGLYME), diethylene glycol dimethyl ether (DIGLYME) or tetraethylene glycol dimethyl ether (TETRAGLYME).

11. **(currently amended)** A method of forming a microporous fluoropolymer sheet, comprising the steps of:

irradiating a sheet of fluoropolymer at a dosage level below the rupture energy of the carbon-to-fluorine (C-F) bonds of the fluoropolymer, but sufficient to rupture carbon-to-carbon (C-C) bonds; and

exposing the sheet of fluoropolymer to an etchant for a period of time sufficient to etch away disrupted atoms and molecules, wherein continuous micropassages are formed through said sheet, and wherein said etchant is [[a gas]]fluorine.

Claim 12 **(canceled)**

13. **(previously presented)** A method of forming a microporous fluoropolymer sheet, comprising the steps of:

, irradiating a sheet of fluoropolymer at a dosage level below the rupture energy of the carbon-to-fluorine (C-F) bonds of the fluoropolymer, but sufficient to rupture carbon-to-carbon (C-C) bonds; and

exposing the sheet of fluoropolymer to an etchant for a period of time sufficient to etch away disrupted atoms and molecules, wherein continuous micropassages are formed through said sheet, and wherein said sheet of fluoropolymer is one of several sheets simultaneously exposed to said electrons.

14. **(original)** A method as defined in claim 13, wherein said several sheets of fluoropolymer are layered one on another into a stack and said electrons radiate through said stack.

15. **(previously presented)** A method of forming a microporous fluoropolymer sheet, comprising the steps of:

irradiating a sheet of fluoropolymer at a dosage level below the rupture energy of the carbon-to-fluorine (C-F) bonds of the fluoropolymer, but sufficient to rupture carbon-to-carbon (C-C) bonds; and

exposing the sheet of fluoropolymer to an etchant for a period of time sufficient to etch away disrupted atoms and molecules, wherein continuous micropassages are formed through said sheet, and wherein said irradiated fluoropolymer sheet is etched in a liquid etchant within an electric field that produce an electrophoresis effect in said liquid etchant.

16. **(previously presented)** A method as defined in claims 6, 11, 13 or 15, wherein said fluoropolymer is polytetrafluoroethylene (PTFE).

17. **(previously presented)** A method of forming a microporous fluoropolymer sheet, comprising the steps of:

irradiating a sheet of fluoropolymer at a dosage level below the rupture energy of the carbon-to-fluorine (C-F) bonds of the fluoropolymer, but sufficient to rupture carbon-to-carbon (C-C) bonds; and

exposing the sheet of fluoropolymer to an etchant for a period of time sufficient to etch away disrupted atoms and molecules, wherein continuous micropassages are formed through said sheet, and wherein said step of irradiating occurs with an oxygen-bearing medium supplied to an area where said fluoropolymer sheet is irradiated.

18. **(original)** A method as defined in claim 17, wherein said oxygen-bearing medium is a fluid.

19. **(original)** A method as defined in claim 18, wherein said oxygen-bearing medium is water.

20. **(original)** A method as defined in claim 19, wherein said water is sprayed onto said fluoropolymer sheet.

21. **(original)** A method as defined in claim 17, wherein said oxygen-bearing medium is a gas.

22. **(original)** A method as defined in claim 21, wherein said gas is oxygen.

23. **(original)** A method as defined in claim 17, wherein said fluoropolymer is polytetrafluoroethylene (PTFE).

24. **(currently amended)** A method as defined in claim 1claim 13, wherein said sheet is a generally continuous film having a thickness between about 10 μm (microns) and 200 μm (microns), and said film is continuously conveyed past a stationary source of irradiation.

25. **(original)** A method as defined in claim 24, wherein said film is conveyed through an etchant following said irradiation step.

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26. **(currently amended)** A method as defined in ~~claim 1~~claim 13, wherein said sheet has a thickness of about 10 μ m (microns) to about 15 mm, and said sheet is irradiated and etched as an individual piece.

Claims 27-32 **(canceled)**